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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/598,725	06/12/2007	Mitsuo Arima	112857-711	9416
29175	7590	05/16/2008	EXAMINER	
BELI, BOYD & LLOYD, LLP			GRAMLING, SEAN P	
P. O. BOX 1135			ART UNIT	
CHICAGO, IL 60690			PAPER NUMBER	
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			05/16/2008	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/598,725

Applicant(s)

ARIMA ET AL.

Examiner

SEAN P. GRAMLING

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 September 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/5506)
Paper No(s)/Mail Date 9/8/06
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. **Figures 1 and 2** should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claims 14-17 and 25-26** are rejected under 35 U.S.C. 102 (b) as being anticipated by *Olczak* (US 2004/0109663).

4. Regarding claim 14, *Olczak* discloses an optical sheet 110 comprising cylindrical lens elements 116 which have a high-order aspheric face and are provided successively in a row on one of principal faces of the optical sheet, wherein a Z axis is taken in parallel to a normal line direction to said optical sheet and an X axis (represented by

variable "r" in *Olczak*) is taken in a direction of the row of the cylindrical lens elements, a cross sectional shape of the cylindrical lenses satisfies the following expression:

$Z = X^2 / (R + \sqrt{R^2 - (1 + K)X^2}) + AX^4 + BX^5 + CX^6$ where R is the radius of curvature of a distal end vertex, K is a conic constant, and A, B, and C are aspheric coefficients (see Figures 2-3 and paragraphs [0022]-[0023]; note: *Olczak* defines variable "c" as 1/R, and when 1/R is substituted into Equation 1, the claimed equation is obtained. *Olczak* uses variables "d", "e" and "f" as the aspheric coefficients rather than A, B, and C. Also note that the summation in paragraph [0023] and discussion in paragraph [0024] allows for the claimed polynomial).

5. Regarding claims 15-17, the variables satisfy the claimed numerical ranges (see paragraph [0023]).

6. Regarding claim 25, *Olczak* discloses a backlight comprising a light source¹⁰² for emitting illumination light; and an optical sheet 110 for raising the directivity of the illumination light emitted from the light source; the optical sheet has on the illumination light emission surface side thereof cylindrical lens elements 116 which have a high-order aspheric face and are provided successively in a row on one of principal faces of the optical sheet, wherein a Z axis is taken in parallel to a normal line direction to said optical sheet and an X axis (represented by variable "r" in *Olczak*) is taken in a direction of the row of the cylindrical lens elements, a cross sectional shape of the cylindrical lenses satisfies the following expression: $Z = X^2 / (R + \sqrt{R^2 - (1 + K)X^2}) + AX^4 + BX^5 + CX^6$ where R is the radius of curvature of a distal end vertex, K is a conic constant, and A, B, and C are aspheric coefficients (see Figures 2-3 and paragraphs [0022]-[0023]; note:

Olczak defines variable "c" as $1/R$, and when $1/R$ is substituted into Equation 1, the claimed equation is obtained. *Olczak* uses variables "d", "e" and "f" as the aspheric coefficients rather than A, B, and C. Also note that the summation in paragraph [0023] and discussion in paragraph [0024] allows for the claimed polynomial).

7. Regarding claim 26, *Olczak* discloses a liquid crystal display apparatus comprising a light source¹⁰² for emitting illumination light; an optical sheet 110 for raising the directivity of the illumination light emitted from the light source; and a liquid crystal display panel (see paragraph [007]); the optical sheet has on the illumination light emission surface side thereof cylindrical lens elements 116 which have a high-order aspheric face and are provided successively in a row on one of principal faces of the optical sheet, wherein a Z axis is taken in parallel to a normal line direction to said optical sheet and an X axis (represented by variable "r" in *Olczak*) is taken in a direction of the row of the cylindrical lens elements, a cross sectional shape of the cylindrical lenses satisfies the following expression: $Z = X^2 / (R + \sqrt{R^2 - (1 + K)X^2}) + AX^4 + BX^5 + CX^6$ where R is the radius of curvature of a distal end vertex, K is a conic constant, and A, B, and C are aspheric coefficients (see Figures 2-3 and paragraphs [0022]-[0023]; note: *Olczak* defines variable "c" as $1/R$, and when $1/R$ is substituted into Equation 1, the claimed equation is obtained. *Olczak* uses variables "d", "e" and "f" as the aspheric coefficients rather than A, B, and C. Also note that the summation in paragraph [0023] and discussion in paragraph [0024] allows for the claimed polynomial).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. **Claims 18-24** are rejected under 35 U.S.C. 103(a) as being unpatentable over *Olczak* as applied to claim 14 above, and further in view of *Oda et al* (US 6,332,691).

10. Regarding claims 18-24, *Olczak* does not specifically teach the formation of convex portions on the face of the optical sheet 110 opposite the face on which the cylindrical lens elements 116 are formed, wherein the convex portions have a height equal to or greater than 0.20 micrometers, wherein the density of the convex portions is between $70/\text{mm}^2$ and $500/\text{mm}^2$, wherein the average distance between the convex portions is between 50 and 120 micrometers, and the cloudiness degree of the optical sheet is lower than 20 percent, the roughness of the convex portions is between 1 and 15 micrometers, and the average inclination gradient of the convex portions is equal to or lower than 0.25 degrees. However, the formation of convex portions along the surface of an optical sheet for a backlight unit with the specific dimensions and properties claimed is well-known in the art, and is specifically taught in *Oda* (see *Oda*, Figures 1, 2 and 10, and column 7, lines 57-58, column 11, lines 32-35, column 12, lines 32-34). It would have been obvious to one of ordinary skill in the art at the time the invention was made to form convex portions along the face of the optical sheet 110 opposite the face on which the cylindrical lens elements 116 are formed in *Olczak* as

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taught by *Oda* in order to provide an optical sheet with high brightness and high uniformity in brightness distribution (see *Oda*, column 3, lines 55-60).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SEAN P. GRAMLING whose telephone number is (571)272-9082. The examiner can normally be reached on MONDAY-FRIDAY 7:30 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (571) 272-2378. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Sean P Gramling
Examiner
Art Unit 2875

/SPG/

/Sandra L. O'Shea/
Supervisory Patent Examiner, Art Unit 2875